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one side of paper, with ink, and upon but one side
of correspondence from particular farmers, giving
the results of their experience, is solicited.
Letters should be signed with the writer's real
name, in full, which will be printed or not, at
the proprietor's wish.

THE PLOUGHMAN offers great advantages to ad-
vertisers. Its circulation is large and among the
most active and intelligent portion of the com-
munity.

AGRICULTURAL.

What Does Milk Cost?

There is probably no farming question as
to which there is so wide disagreement
among farmers as there is about the cost of
milk. It undoubtedly costs more in winter
than it does in summer, and the cost varies
with the season, the old-time system of
feeding on dry hay and cornstalks, which
sometimes a little grain for variety, which,
however, usually went to make fat on the
body rather than to increase the milk flow.
There was no inducement in those days to
have cows calve in the fall, for the fresh
cows came at a season when it was almost
impossible to keep it up. Milk is always
dearer in winter than in summer, but under
these conditions the slightly increased
price did not pay the extra cost, and all the
winter-made milk had to be sold at a loss.

Now, however, a farmer who has a base-
ment barn and silos to ensilage his corn
fodder can have cows drop their calves in the
fall with some confidence that the winter
product will pay its cost. Corn fodder is so
much cheaper than is pasture on high-priced
land that it can be given in succulent form,
and if cows can be protected from winter's
cold, the winter's milk does not cost any more
than that made in summer, where the main
dependence is on pasture.

We believe that good pasture in June will
bring more milk from a new milch cow than
will any other feed. But that is not saying
that even then it is the cheapest feed. It
must be remembered also that June past-
ure fills out only a small part of the summer.
The grass is sappy and nutritious in May, and by July or
August it either grows hard and woody,
or dries up so that cows will not eat it
much of it, and that they do not eat it
much of it, and that they do not eat it
much of it. So great is the need of extra
feed for cows at this time that corn
dried for fodder is often cut before it has
even got into blossom, and when it, of course,
has very little nutrition. So soon as corn
matures sufficiently to feed will furnish a
ration that will materially increase the
milk flow in cows at pasture. Indeed, many
of the best farmers put their cows in dark-
ened stables during August weeks, partly to
protect them from flies. They find that
cows that are so fed will give more milk
than those that are fed on green corn or
with clover makes a larger milk flow,
and makes it more cheaply than does reli-
ance on pasture, even when corn is cut and
fed only as an adjunct to it.

This milk pretty nearly proves that
considering results the winter feed of cows
costs less than it does while they are at
pasture. Most farmers deceive themselves
into thinking that their summer pasture
costs nothing, because they expend neither
money nor labor to secure its product. The
cow is turned in, eating with one mouth, but
all the time trampling the tender grass with
four feet, rolling the grass, besides more or
less bruising it, and injuring its roots.
If the pasture is clover this injury is so
serious that stock ought never to be turned
into a clover field until it is nearly ready to
blossom. Until this time clover is about the
poorest feed that can be offered to a cow. But
turn a cow into a field of clover when it is in
blossom, and what will be the result? She
will trample through it, biting off the clover
leaves, and soiling or destroying fairly two
times as much as she eats. If the same clover
is cut and fed green to the cow she
can not separate the heads from the stems
so well, and will eat the whole of it. In
this way three times as much feed will be
got from an acre of clover as can be secured
by pasturing. Some of the clover will be
soiled so that the cow will not touch it
through the remainder of the season.

Every farmer who has pastured clover
knows that, toward fall, while most of the
ground will be trampled down almost to the
roots, there will be a considerable portion
that has grown hard and woody, so that it
has little nutritive value. When the
clover is eaten off early the second growth
promptly springs up and is both palatable
and nutritious. That is what grows up

after the first crop has been cut for soiling
or for hay. A second, third, and even
fourth crop of clover may be grown, if the
soil is rich enough, and each one will be
more nutritious than the first. This re-
peated cutting of clover is far better
for the root growth than pasturing it
can be, for in pasturing, the constant
trampling of the ground hurts the plant and
keeps both its root and top growth. In
short, clover will usually produce not only
three times as much feed when cut with
a scythe or mower as when pastured, but
it is nearly or quite three times as much be-
nefit to the land. When the clover is cut,
more or less leaves fall upon the soil, and
it is the rotting of these that doubles and
trebles the growth that the clover would
otherwise make. The cow returns only the
excrement from the clover she eats, but
that is not in condition to help the clover
growth materially the same season.

If a farmer reckons the interest value
of pasture land, and divides that by the num-
ber of cows he can keep on it, he will
usually find the pasture lot has cost more
for the feed it gives than a equally good feed
lot for soiling and for the silo. Only for a
few weeks, and those usually in June, does
pasture furnish alone the best feed. At all
other times the pasture needs to be supple-
mented, and it can mostly be done with
feeds that will produce more milk at less
cost than will the pasture itself.

Lice on Animals.

It has been many years since we have
seen the insect pest known as a louse upon
any of the domestic animals, not including
poultry as animals in this statement,
although we have had the care of many and
examined some owned by other people in
that time. We had begun to congratulate
ourselves that they had been exterminated
from the cattle sheds and calf pens, as from
most other live stock, and to hope that with
care we might soon reach the point where
they would be banished from poultry houses.

But if we may judge by the agricultural
papers that come to hand, the plague of lice
has descended upon us during the past year,
or there is an epidemic of them. Scarcely
one do we see in which some correspondent
does not relate his experience with them, or
ask for directions for exterminating them.
No section of the country seems to be free
from their presence, and no species of stock,
as sheep, swine and horses, appear to be
much troubled by them as horned cattle.

We will not attempt to account for their
abundance and their wide distribution, but
we know that if they are not killed off be-
fore the animals get to pasture, they are
able to increase, greatly to the discomfort
of the animals, and adding to the expense
of feeding them. For this reason we re-
produce the following bulletin on this subject,
issued recently by the Kansas Experiment
Station, which is timely and valuable.

These wingless insects are found parasi-
tically on all animals. Cattle are particularly
in the most common victims of lice. Sheep
are rarely affected. We meet with this
disease most frequently during the winter
months, in neglected, half-starved, dirty
animals. Young animals are especially
liable to be infected. Sometimes, however,
even well-kept cattle suffer severely.

So-called lice are either true lice (Hæma-
tophaga) or bird lice (Trichodectes). The
former have a slender, often spindle-
shaped body, a pointed head, grayish blue
color, and suck blood. The trichodectes
are broader, have a squarish head, brown
color, and have biting mouth parts, living
on hair and epidermal scales. Trichodectes
are usually found on neglected, unthrifty
animals with long, straggly hair and a dirty,
scaly skin. They usually disappear as soon
as the animal's condition improves. True
lice, on the other hand, occur also on thrifty
animals.

Every species of domestic animal has its
own species of louse, or lice (horse louse,
ox louse, pig louse, goat louse, dog
louse, etc., and trichodectes of the horse,
ox, sheep and dog). The louse of one spe-
cies of animal cannot exist permanently
on another species.

Symptoms.—Lice always give rise to a
troublesome itching, causing the animals to
rub and scratch the infested portions of the
body. The hair is rubbed off, or drops out,
and the exposed skin becomes inflamed, red,
and covered with extensive eruptions,
and large, raw bleeding surfaces, giving
the animals an extremely distressed and
unpleasant appearance.

Lice seem to prefer the region of the neck
and mane, the back, root of tail and, in
cattle, the base of the horns, in pigs the
region between the hind legs.

The presence of lice is sufficient evidence
regarding the nature of the trouble.

There are many remedies for destroying
lice, e.g., arsenic, mercurial ointment, helio-
line, tobacco decoctions, the seeds of De-
lphinium staphysagria (stavesacre), aroclor,
carbolic acid, lysol, train oil or fish oil, etc.

The following are of especial merit:

1. Mercurial ointment diluted with a lit-
tle oil, is very effective on horses and pigs.
It is applied in small quantities to the af-
fected parts only. It must not be used on
cattle.
2. A tobacco decoction (one pound tobacco
and three gallons boiling water, allow to
stand for half an hour) with or without the
addition of two pints of vinegar, is very ef-
fective; but often produces nausea in horses
and cattle.
3. Five per cent. solutions (three tea-
spoonfuls to a pint) of aroclor or lysol in
water containing 20 per cent. of alcohol, will
rubbed in with a stiff brush, is very ef-
fective.
4. The remedy which has given the most
satisfactory results to the writer is
Kerosene, two gallons; common or white

oil soap, one-quarter pound; water, one
gallon. Heat the solution of soap and
add it boiling hot to the kerosene, then
stir the mixture for ten minutes. Dilute
the emulsion with 20 gallons of water and
apply with a spray pump. If no spray
pump is at hand, drive the animals, if many
are to be treated, into a narrow chute, and
apply the emulsion with a common water-
ing can, being careful to treat all parts of
the body.

Select a mild, sunny day for the op-

the students at college, which was to many
of them a great help in paying their way
there, while doing this work gave them
practical instruction in at least one branch
of agriculture, to go with the scientific and
theoretical teachings given in the school
room. It is a good showing both for the
students and the college management, es-
pecially in view of certain points we notice.
The amount of milk sold was but about
three-fourths of the whole production, yet
we find no credits for the other 25 per cent.

country were less in some years and more
in others, how much better it would be.
How to make it so is what we have yet to
learn. Following the enormous crop of
1896, the orchards mentioned gave but poor
returns for both 1897 and 1898. Weakened
vitality from overbearing, unfavorable cli-
matic conditions in budding and blooming
time, and unusual numbers of insect
pests had much to do with it, but not
all, for apple trees are great feeders, and
lack of proper nourishment has more to do

800 pounds of grain to lay on 100 pounds
of weight. During the next month it
requires a two per cent. increase of the
food to make the same amount of gain.
The fourth month shows a still slower gain,
and to make the same gain in weight the
grain must be increased 15 per cent. and, in
the next month the increase must be nearly
25 per cent. In the following month and a
half the food has to be increased to 37 per
cent.

Here we have the steady decline in fat-
ness power until the amount of grain fed
must get so large that it would be a
waste of time to attempt to fatten further.
Up to a thousand pounds the steer can be
fattened at a profit, but after that the pro-
cess is doubtful with some and certain
enough in others. A good deal depends
upon the animal.
Ohio.
E. F. SMITH.

Farm Hints.

A farmer in Cumberland County, Me.,
writes to the Maine Farmer that he nec-
essarily sows 12 bushels of oats to the acre,
and thinks he secures better results from
that amount of seed than he would from
heavier sowing. One year he sowed 7½
bushels on six acres, and secured 337
bushels, threshers' measure, from it. As
farmers generally sow about three bushels
to the acre, and some think four bushels is
better, the saving of seed is not unimpor-
tant for one who grows many acres.

But he says he always takes pains to have
his seed oats well cleaned, taking out all
light oats as well as all foul seed. In this
matter of selecting heavy seed we think is
much of his success in growing good oats,
and no doubt his land is good soil and in
good condition.

Here, where farmers do not grow oats for
the grain, but occasionally to make oat hay
for horses or milk cows, we think
a little heavier sowing is desirable, as a
thick stand makes the straw or hay
finer, and the animals like it better
than a coarser hay. We cannot very
well select our seed as does the farmer who
grows the grain, and we must use the
oats as we buy them, only hoping that if
we pay a little extra price for seed oats,
we will get a heavier and better seed than if
we ask our feed oats. Under these circum-
stances we think three bushels to the acre
is not too heavy sowing. And where the
English sparrows are plenty, as they are
near our villages, we ought to sow another
bushel for them, for they will pick up seed
faster than as many hens, and it seems as if
each one eats more than a hen.

Some people appear to be much worried
about the cruelty of an order for exterminat-
ing these pests and nuisances from the
parks and public places in Boston. The
cruelty and inhumanity is in ever allow-
ing them to be brought here to drive away
our native song birds. The birds which
they have driven away were insect eaters
and kept the orchards and garden trees
free from a number when they were plenty.
Indeed, we doubt if the gypsy moth would
ever have been able to increase as rapidly
as it did if the English sparrow had not
driven all other small birds out of the
villages and cities around Boston.
The gypsy moth and the English sparrow
were introduced here about the same time,
in 1868, and by 1875 it was noticed that they
were driving away bluebirds, martins,
wrens and swallows, as well as the native
sparrows from around the villages. Then
they invaded the woodlands, and by 1885
the vireos, warblers, chickadees and many
other insect-eating birds were driven away,
and in 1888 the ravages of the gypsy moth
began to attract public attention.

The farmers of Massachusetts, who if
they have not suffered in their orchards and
forests by these insects, have at least been
taxed for the cost of trying to exterminate
them, should have neither love nor affec-
tion for the English sparrow, and should be
ready to destroy them wherever they can
find them. Use the shotgun freely when-
ever a flock of them can be found. There
will be no danger of killing other birds, for
they do not allow other birds to mix with
them whenever there is anything eatable
to be picked up. It was useless to urge this
while our city parks were kept as breeding
grounds for them, but if Boston sets the
good example other cities will follow, and if
the farmers unite in the work, their num-
bers must be greatly reduced.

The Wheat Crop.

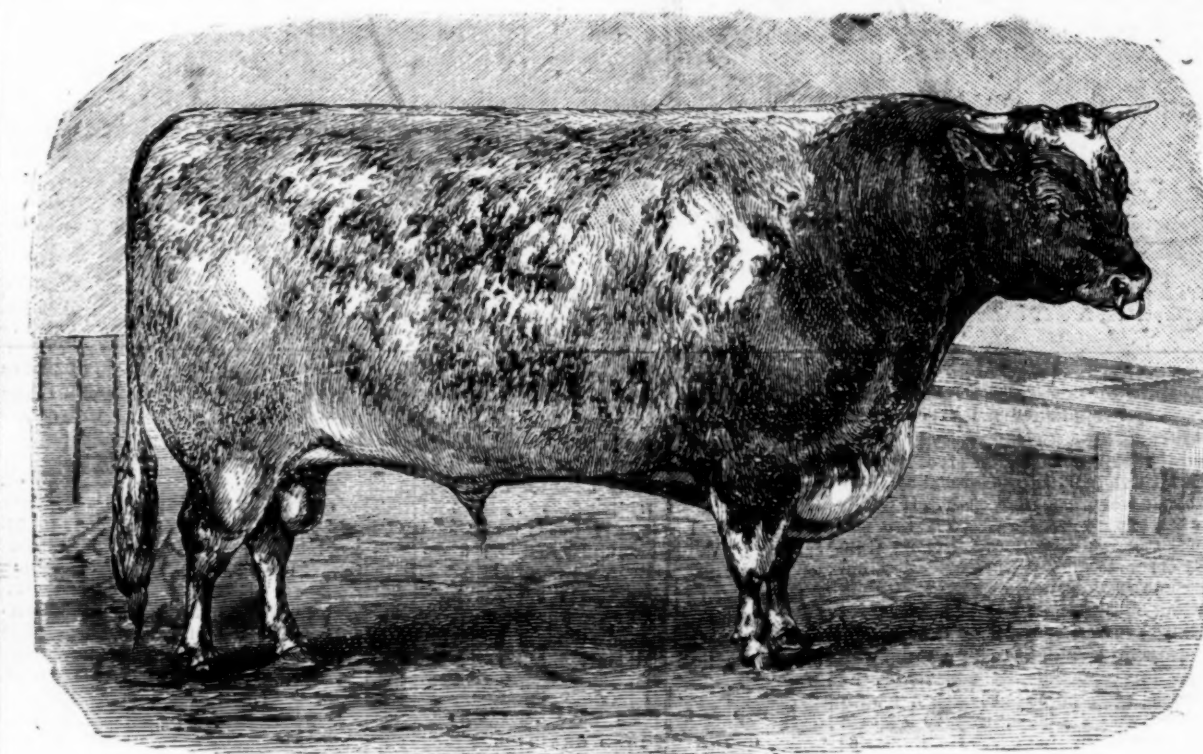
The wheat farmers of America are still
despondent to be the controlling factors in the
world's wheat production, and it is quite
important that there should be a class who
have faith enough in this product to stick to
it until it is starved out. In the recent wheat
depression there were probably quite a number
who did from necessity stick to wheat be-
cause they could do nothing else. But how
many made up their minds to ride over the
depression and stand by wheat would come
again into its normal condition as the chief
economic factor of our industrial life?
Until we recognize that every crop and
manufactured article must have its ups and
downs, we cannot have faith in wheat or
any other crop that happens for the time
being to be depressed.

We are learning more about the relative
value of wheat as a crop every year. We
know that this grain is needed by the
world, and that in spite of Argentina's in-
creasing production we will always con-
trol the key to the situation. The stimu-
lus of better prices is sometimes needed to
improve the culture of wheat. This
year we may expect to see a larger wheat
yield per acre than for several years
past. It is not that we know better what
the wheat plants need, but the expectation
of higher prices will stimulate every farmer
to raise as large a crop as possible. The
result will be beneficial in many ways. It
is surprising what a difference there is in
the yield per acre of the same land from
year to year. A little neglect will bring
down the yield from ten to thirty per cent.
Each year we are learning more about our
wheat soils and their needs. Our clay lim-
onous soils require an abundance of phos-
phoric acid, and where large quantities of
manure have been applied year after year
little else is required. There is enough
potash and nitrogen already on hand. The
South Carolina phosphate rock is an excel-
lent manure for this work, and applied
properly it is one of the most economical
that can be purchased.

A. B. BARNETT.

Obituary Notice.

Mr. Warren Clark of Groton, Mass., passed to
the higher life April 26, aged 79 years, 10
months, 24 days. He became a subscriber to
the MASSACHUSETTS PLOUGHMAN in 1845, the
year of his marriage, and continued such to the
present time, covering a period of 54 years.



SHORTHORN BULL PRINCE OF HALMABY.
The Property of Mr. H. Williams, of Moor Park, Harrogate. Winner of First Prize at Royal Show at Norwich, England.

eration. In the course of four days or a
week repeat the application in order to
destroy these lice that have, in the mean-
time, emerged from the nits. Where the
animals have been kept in stables or pens
do not neglect to give these places the
same treatment; they are just as lousy as
the animals, and if not treated they will
soon reinfest the animals. Finally avoid
conditions favorable to future infections,
by giving animals proper care and keeping
them in a vigorous, thrifty condition. For
long-haired animals (calves), shearing
might be recommended. Weak, run-down
animals may require special nursing to re-
cover completely from an attack of lousiness.

* Note.—Be sure to have the water boiling hot
when you add it to the kerosene, and pour it
thoroughly, otherwise you will have trouble in
making a good emulsion, which, when used
right, should have a creamy appearance.

Dairy Notes.

A patron of the creamery writes to the
Wisconsin Dairy School that his creamery
makes 6882 pounds of butter from 5248
pounds of butter fat. This is a gain of 1634
pounds, or over 31 per cent., showing the
butter to have but 69 per cent. of butter fat
in it. The trouble must be in testing the
cream. In some way it is made to show too
small an amount of butter fat, which illus-
trates what we have said before, that the
Babcock test could be inaccurately made,
either by mistake or intentionally, so that it
is not safe to buy or sell by it when there is
as much reason to doubt its correctness as
there is in this case.

Some stations allow that the butter as it
is made up will contain 83 per cent. butter
fat, the remainder being water, casein, salt,
etc. They therefore add one-fifth to the
reading of the test, which would in this
case make about 6288 pounds of butter from
the butter fat, or by figuring the other way,
it should require 5785 pounds of butter fat
to make 6882 pounds of butter.

We do not believe that a butter containing
31 per cent. of substances, not butter fat,
could be sold as good butter in any market.
A really prime article well worked, dry, and
not too heavily salted, should have more
nearly 87 per cent. of butter fat, but calling
it 88 per cent. it would require about 5800
pounds of butter fat to make 6882 pounds of
really prime butter. Either the test falls
to show a true per cent. of butter fat, or
they are sending out very poor butter.

From the Ohio State University, which is
another and a much poorer name for an
agricultural college, we have a report in the
Student of the dairy operations there dur-
ing the past year.

They have milked an average of 35 cows
during the year, with a total production of
219,558 pounds of milk, testing 4.3 per cent.
butter fat. This milk is separated, pasteur-
ized, standardized and bottled, each can
being labeled with a guarantee of its purity
and quality. Of course this adds consider-
ably to the labor of handling the milk. They
sold 155,550 pounds of milk for \$4008.87,
which we make a little less than 24 cents
a pound, or five cents a quart.

The food cost \$1,279.96, including \$200 for
pasture. The labor cost in all \$2140.64, of
which \$447.14 was expended in the labora-
tory, where the milk was prepared and
bottled, and \$155.84 was the expense of de-
livering. The total cost of food and labor
was thus \$3429.60, or \$25.25 per cow, or
\$35.54 for food and \$59.73 for labor. The
receipts were \$111.30 per cow, showing a
net profit of \$16.04 per cow.

All this labor account was for labor of

either as having been fed to calves or other
animals, and no credit for calves or other
measures. If all the milk had been sold at
the rate given, it would have added about
\$37 to the annual production and the same
to the profit, making that about \$53 per
cow, beside the manure, which would more
than repay interest, taxes and barn room
for the cows.

The enactment of a law in New York
against the use of any of the so-called pre-
servative compounds in any dairy products,
and compelling the marking of all "process"
butter, is likely to prove of greater advantage
to dairy interests than any law ever before
enacted. Now two more things are needed,
to induce other States to pass similar laws,
and then to see that they are rigidly put in
force. "Let no guilty man escape." We
do not want unbalanced milk or butter, nor
butter that has been melted, and treated
with chemicals to take the dirt and bad
flavors out of it.

If a man buys oleo margarine from mo-
tives of economy, he at least has the satis-
faction of knowing that it has been made
under government inspection, intended at
least to see that it is not made in a
filthy manner. But the butter which has
been renovated was often unwholesome
and filthy to start with, and while the process
may have taken some of the filth out of it,
we should imagine that we could taste it
if we could not see it.

When the cows begin to pick up old bones
and chew them by the hour, without seeming
to get anything from them but the flavor, it
may be taken for granted that they need
more salt or bone lime and probably both.
We like to feed to every cow running on old
pastures or being fed upon fine hay from old
meadows, about a tablespoonful of fine
ground bone every day. It costs little, and
no harm, and seems to supply a natural
want of the animal, which needs bone-form-
ing material, not only to build up the waste
of its own system, and to build up the frame
of the calf, but to create milk.

There may be a better way to supply this
phosphate of lime than in the bone. Clover
hay is richer than any other hay in it, ex-
cepting alfalfa perhaps, turnsips richer than
any other root that we think of, and there-
fore the best for cows or any other animal
carrying young, and bran has as much or
more of it than other grains. If we had
plenty of those three feeds we should not
think the bone meal was needed. As for
feeding salt, we have usually been so near
to the seashore when keeping cows, that
we needed to use but little of it, yet we
have found that a little was much relished
and times.

Another way of feeding phosphate of
lime or bone phosphate is to feed it to the
grass when growing. Give old meadows and
pastures a dressing of acid phosphate, and
not only will the crop be increased, but the
product will be richer in that element.

Our Apple Orchards.

There must be something wrong or out
of joint when three of the largest orchard-
ists in this part of Kennebec County could
not in the month of February make up one
car lot of winter apples. The three combined
have between 40 and 50 acres of orcharding,
the larger part in bearing, and the best they
could do during that month was to pack 107
barrels, when it takes 150 barrels for a car
lot. The same parties in 1896 had together
more than 2000 barrels of sound, salable
fruit.

If the fruit crop, especially apples, of the
last week of production than all other
crops combined. This is a general rule.
In some instances there are exceptions,
and the yield upon orchards of the for-
est-tree celtis during the past two seasons
is one of the exceptions. All through
this section of Kennebec County, including
Hallowell, Manchester, Winthrop and
Monmouth, the damage to the foliage of the
apple, pear and cherry trees was enormous.
Some growers attempted to destroy them by
other means than spraying, yet, except on
very young trees, failed to accomplish
much. Those who did spray their orchards
had some fruit to sell, while those who did
not had hardly enough for home use.

I sprayed the majority of my trees with
Paris green, eight ounces to 50 gallons of
water, using the Bordeaux mixture for apple
scab at same time, and had over 100 barrels
of fruit. I am confident that had I not
succeeded to spray there would have been but
little or no fruit, while the condition of
the trees would have been such that no fruit
could be expected next year. When trees
have been stripped of their foliage it takes
two years to recover.

It is seldom we have had such a winter as
the past, more favorable for lumbering or
drawing wood from forests, and all inter-
ested have availed themselves of the oppor-
tunity. The farmer who cuts and prepares
his wood in these times from hand to mouth
is hard to find. He would be hipped out of
the neighborhood.

Just now, also, good dairy cows are in
great demand, bringing from \$90 to \$60.
I sold one recently for \$60 that cost me \$40 a
year ago, and I was loath to part with her at
that price, as first-class animals are not as
plenty as berries on a bush. A good many
first-class cows have gone out of this State
to Massachusetts within the last few years,
—too many, perhaps—and yet there are a
few good ones left. Cows that will make
from 300 to 400 pounds of butter in a year
are as scarce here in Maine as some
world imagine. Maine is a good breeding
place for several kinds of stock.

W. P. A.

The Cost of Fattening.

It is a very easy matter to take a half-
starved or a young animal and make it gain
in weight very rapidly by liberal feed-
ing; but the amount the animal gains when
in this condition is no criterion as to how
much fat a given ration will produce in a
day or week. In the first few months the
steer will gain so rapidly that every pound
of feed given will pay a big profit.
Then comes a time when the appeti-
te of the animal seems to stop, and the
fat-making process halts. It is not
strange that many would consider some-
thing wrong with the animal and begin
to dose it with medicine. The fact is that
it is in the first few months that the animal
gains most of its weight; then it takes
longer and more labor to make more fat.
Every succeeding pound comes slower and
costs more. The question is to know just
when to stop. When the animal has reached
a point where it is a losing investment to
feed further for fat. There certainly is a
point beyond which it will not pay to feed
for fat. The cost of the food for each ad-
ditional pound will be greater than the value
of the fat.

Recent experiments have been made
which help to show the relative gain of
steers on a given ration at different
periods of their lives. Thus during the
first two months it requires a trifle under

the fruit crop, especially apples, of the
last week of production than all other
crops combined. This is a general rule.
In some instances there are exceptions,
and the yield upon orchards of the for-
est-tree celtis during the past two seasons
is one of the exceptions. All through
this section of Kennebec County, including
Hallowell, Manchester, Winthrop and
Monmouth, the damage to the foliage of the
apple, pear and cherry trees was enormous.
Some growers attempted to destroy them by
other means than spraying, yet, except on
very young trees, failed to accomplish
much. Those who did spray their orchards
had some fruit to sell, while those who did
not had hardly enough for home use.

I sprayed the majority of my trees with
Paris green, eight ounces to 50 gallons of
water, using the Bordeaux mixture for apple
scab at same time, and had over 100 barrels
of fruit. I am confident that had I not
succeeded to spray there would have been but
little or no fruit, while the condition of
the trees would have been such that no fruit
could be expected next year. When trees
have been stripped of their foliage it takes
two years to recover.

It is seldom we have had such a winter as
the past, more favorable for lumbering or
drawing wood from forests, and all inter-
ested have availed themselves of the oppor-
tunity. The farmer who cuts and prepares
his wood in these times from hand to mouth
is hard to find. He would be hipped out of
the neighborhood.

Just now, also, good dairy cows are in
great demand, bringing from \$90 to \$60.
I sold one recently for \$60 that cost me \$40 a
year ago, and I was loath to part with her at
that price, as first-class animals are not as
plenty as berries on a bush. A good many
first-class cows have gone out of this State
to Massachusetts within the last few years,
—too many, perhaps—and yet there are a
few good ones left. Cows that will make
from 300 to 400 pounds of butter in a year
are as scarce here in Maine as some
world imagine. Maine is a good breeding
place for several kinds of stock.

Recent experiments have been made
which help to show the relative gain of
steers on a given ration at different
periods of their lives. Thus during the
first two months it requires a trifle under

Probably the most extensive experiment
in testing the value of a regular application
of farmyard manure, which was ever made,
is that at Rathamsted, England, which was

[Faint handwritten notes at the bottom of the page]

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TIRE, Esquire,
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n, Mass.

CROCHETED EDGING.

THE HORSE.

Imported Horses.
Reasons Why the Best Continue to Come from Abroad.

Following is an address delivered by myself at the meeting of the National Horse Breeders, Dealer and Exhibitors, held in Chicago, Ill., March 23, 24, 1899:

Twelve years ago, when I made my first voyage to Europe for the purpose of importing horses, I made this remark to one who at that time had a large experience, that the business of importing horses to America for breeding would be short lived; that we would soon stock our country with the several foreign breeds, and would need no more. His reply was, "As long as you and I live Americans will go to France, and will find in Normandy the best and most perfect specimens of the several breeds of French horses." Twelve years of experience in the business of importing horses has given me the opportunity of observing and noting the differences between their customs and ours; and in this short address I will try to explain to you why I have been led not only to agree with my friend, but to go still further and say that the best Percheron and French Coach horses will be found in France not only while he and I live, but forever, or as long as the present conditions continue.

The laws of nature that pertain to breeding are certain, inflexible, and it is not possible to avoid their consequences. The law of gravitation, that holds the universe in order, that causes the earth to travel in its elliptical orbit around the sun, and that causes all of us and everything to remain on the surface on the earth, is no more fixed and certain than the laws of "inheritance" and "variation and selection" in breeding. We all understand and thoroughly believe in the law of "inheritance." We know that "like begets like," that an animal of superior merit is apt to produce animals of its kind, but this very superiority is in itself a variation from the common type. Whether a breed improves or degenerates depends upon selection, and if the animals used for breeding are better than the average of the breed, each succeeding generation will be better, but if those used for breeding are poorer than the average the breed will degenerate.

To use an exaggerated illustration of the principle of variation and selection, we will assume a person about to develop a breed of very heavy horses.

He owns a stallion and a number of mares weighing an average of 1400 pounds each. The mares are bred to the stallion, the colts come, grow and mature, and they will weigh an average of 1400 pounds, some of them will weigh 1500 pounds or more, and some will weigh 1300 pounds or less. This breeder's aim being to raise large horses, of the second generation he will permit none to breed that weigh less than 1500 pounds, and the average weight of this succeeding generation will be at least 1500 pounds, of which some will weigh 1600 pounds or more, and some 1400 pounds or less. Thus he will continue, each generation selecting larger animals for breeding; and the result will be that he will develop a breed of great size. This principle applies to every feature of every living thing, therefore animal life under the control of intelligent breeders is as plastic as the clay in the hands of a potter.

"Natural Selection" or "The Survival of the Fittest," based upon the hypothesis that those individuals that are superior, strongest and best developed are the best fitted to live and reproduce themselves, while the inferior individuals, the weak and imperfect ones have died without reproducing their weaknesses, has been the cause of a constant but slow gradation for the better of all living things; and this is Evolution.

With animals under domestication, selection is no longer natural. We select the animals that we see fit to allow to reproduce, and whether or not the breed improves depends upon the superiority or inferiority of the individuals allowed to reproduce their kind.

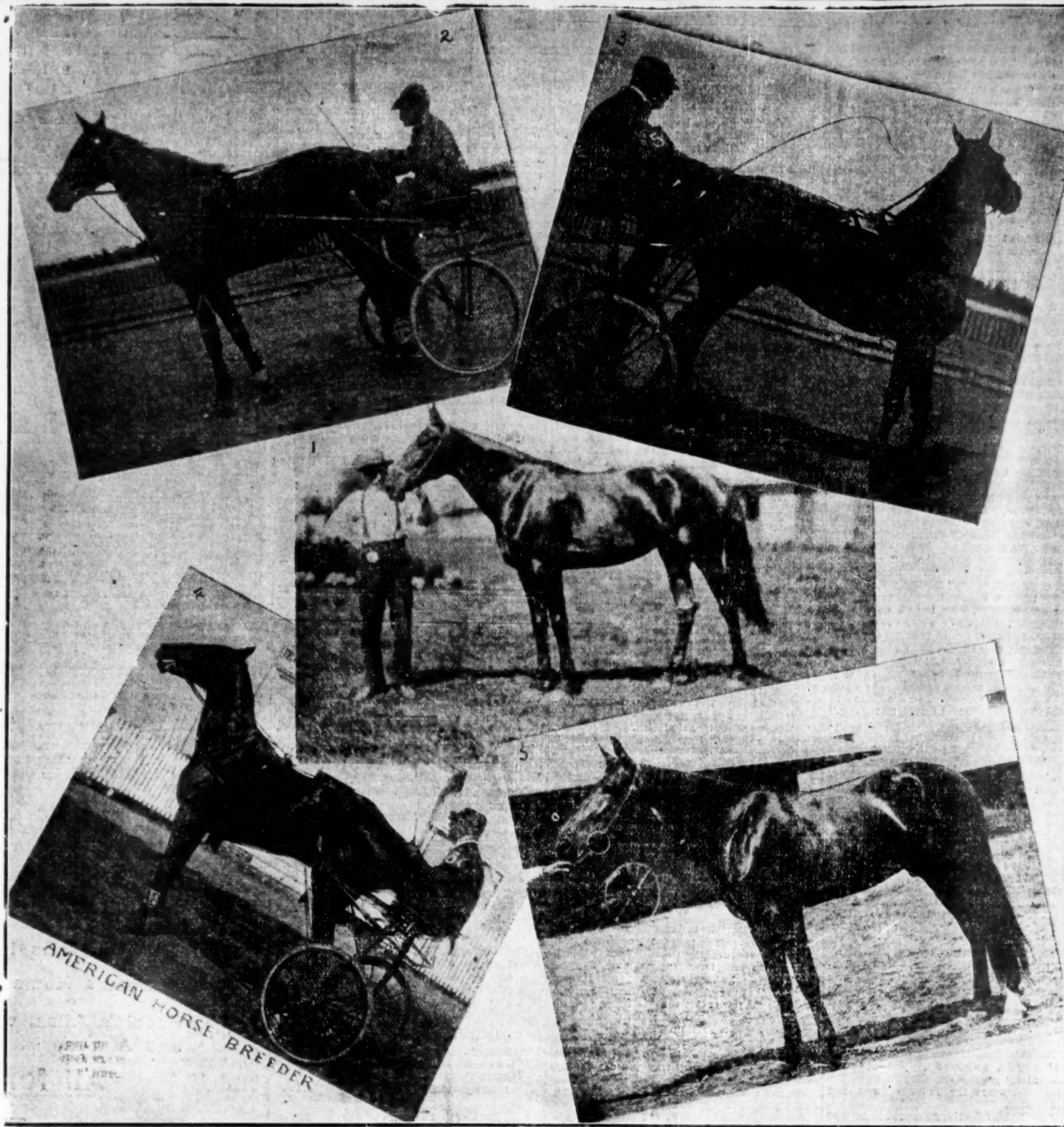
It is the application of this principle that has produced the various breeds of domestic animals. It is the application of this principle by our trotting-horse breeders that has given America a breed of horses that can trot faster over a perfectly smooth track than any other living horse, but with the fast trotter our record ends. The draft breeds have been produced elsewhere. The handsome high acting coach horse has been brought to his high state of perfection abroad.

We can raise as good draft and coach horses in America as are raised in France, but we don't. They recognize the natural laws of "inheritance" and of "variation and selection," and apply them scientifically for the betterment of their breeds of horses and for their profit; while we are too prone to permit the professional horse buyers to take the best away from our farms and dispose of them in the cities to be worn out. Those that are not good enough to sell, we keep and breed. In this manner we select, perhaps unconsciously, for breeding, and the improvement (?) is the wrong way. No doubt there are a few individual breeders and farmers who keep their best, and perhaps there are a few isolated localities where the best mares are retained for breeding; and where sires with real merit, above the average, are retained; but this is not the prevailing condition of things.

One who visits our farmers and horse breeders in almost every county in every State in the Union will hear it said: "We need to have the best mares that could be found anywhere, and there used to be good, pure-bred, registered or imported stallions; but things have changed, the horse business does not pay, and we sold out and quit the business. The stallions grew old and died or were shipped away, many of them were castrated; and nothing has come to take their places. We would like to breed horses again, and with these stallions only approved mares are permitted to be crossed. In addition to the government stallions, there are permitted to stand for public service stallions that are simply approved, and those that are not only approved, but to the owners of which the government will pay a

Whoever has bought horses in France has found that the best breeders who own the best horses will not sell them. Sometimes they put prohibitive prices on them, but more often come out frankly and say: "This stallion or these mares are not for sale." In Europe the habits of the people are more stable, the values of their horses do not fluctuate as they do with us, and they consequently are not tempted to dispose of their best as we are when the times are hard; but this temptation, as it exists in a diminished form, is guarded against by most of the continental governments.

The French government has "taken the bull by the horns," as it were, and buys and stands for public service the best stallions, and with these stallions only approved mares are permitted to be crossed. In addition to the government stallions, there are permitted to stand for public service stallions that are simply approved, and those that are not only approved, but to the owners of which the government will pay a



FIELDMONT, (p), 213-1-4.

SALLY TOLER, (p), 208 1-4.

CIENEGA, 216 1-2.

GRACE HASTINGS, 208.

reward; if offered for public service. A stallion owner can hardly afford to compete with the government unless he does receive a reward in addition to the small fee that his horse will command, for the fee charged by the government is usually only two or three dollars, merely a charge to pay part of the incidental expenses.

When we find the breeders in France not only compelled by their government to respect the laws of nature, but assisted in their very willing efforts to comply with them, and select and retain in their breeding establishments every superior animal, every animal that varies for the better from the "common herd"; and casts off, rejects and throws into commerce to be worn out, never to be permitted to breed, every animal that is inferior, unsound or in any manner defective; they are absolutely certain, they know that their horses raised this year are a better breed than they were 50 years ago, and better than 10 years ago, better than last year. They are as sure of this as I am sure that if I let go of my pencil it will drop to the floor.

Endowed, as we are, with fertile soil, with luxuriant pasture, with nutritious food in great abundance and a congenial, healthful climate, we are supplied by nature with the means of producing the best horses in the world; but can we, while we permit the best, the most valuable and the most perfect individuals to pass into the channels of commerce, to be worn out and lost forever, and keep for breeding those that we cannot sell?

We can import from Europe choice animals of their various breeds, and, as it were, transplant into our country breeds of horses that have required the application of many years of skillful selection and a great many years of patience in their production. But we cannot import the skill nor the patience.

It seems like we will learn only from our own bitter experience. The theories and teachings of philosophers do not come home to most of us, we do not think nor worry ourselves about them, but when we come face to face with stubborn facts, when we find that we have to deal with "conditions and not theories," we stop, and think and yield as gracefully as we can. Today the condition is this: That there are only a few good horses, and we are face to face with the fact that good horses are high, that these horses are becoming scarcer and scarcer, and the prices are mounting higher and higher; but what is more important still, we are almost destitute of good stallions with which to raise more.

Men who do wrong must suffer, and who break laws must pay the penalty attached. The penalty for failing to comply with the simple, inalienable laws of Nature that pertain to breeding is, that we will have to continue to put our hands in our pockets and pay high prices for imported horses.

J. R. McLAUGHLIN.

Columbus, O.

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From the New York Sun.
American Horses for Mexico.

It used to be said that large numbers of cattle were reared in Mexico for the United States, and 15 years ago in northern Mexico alone, on an area of 300,000 square miles, there were 1,500,000 cattle, 2,500,000 goats, 1,000,000 horses and 1,000,000 sheep. In the year 1890 there were imported into the United States, many of them from Mexico, \$100,000. In the fiscal year ending Jan. 1, 1898, the number of horses imported into the United States had fallen to 2286, and the number of horses exported from the United States, chiefly to Europe, was 3501, valued at \$700,000, a difference in the balance of trade of \$1,300,000.

Since then, especially with Mexico, the balance of trade in horses has changed radically, and now the average annual sales of American horses in Mexico reach \$100,000. In the fiscal year ending Jan. 1, 1898, the number of horses imported into the United States had fallen to 2286, and the number of horses exported from the United States had risen to 15,150, the importation of horses representing \$800,000 in value, and the exportation of horses representing a total in excess of \$6,000,000.

There has been of recent years a steady increase in this item of American foreign commerce, and it seems certain to increase still further in view of the fact that there is throughout the West Indies and in many South American countries a dearth of horses at a time when the demand for American horses has visibly decreased. Direct communication with Mexico is easier than with any other country to which horses are sent by the United States, and there need be no surprise, therefore, that horses are sent in large numbers to Mexico. In fact, it is a fact that there is an increase in this item of American commerce here after.

Of 51,000 horses exported from the United States last year, 22,000 were sent to Great Britain, nearly 8000 to Germany, 7500 to other European countries, France excepted (there is practically no exportation of American horses to France), 3000 to Canada, British North America and the Kingdom, 1800 to the West India Islands and Bermuda, and 1000 to Mexico and Central America. The value of the horses sent to England was \$3,000,000, to Germany \$1,200,000, to other European countries \$770,000, to British North America \$883,000, to the West Indies and Bermuda \$132,000, and to Mexico and Central America \$102,000.

The trade in American horses with South America can be said only to have begun, amounting last year to only 21 horses, while five times as many were sent to Africa and more than 10 times as many to Asiatic countries. For American horses there would appear to be an assured market in the West Indies since the restoration of peace in Cuba, for during the fiscal year ending July 1, 1897, nearly 5000 American horses were shipped to these islands, and the decline in the year succeeding is ascribed generally to the unsettled condition of affairs in Cuba, and to the practically enforced abandonment of agricultural operations on many parts of the island.

Temporarily, too, a number of horses were withdrawn from agricultural pursuit for the requirements of the Cuban cavalry, and some, too, were purchased for the needs of the Spanish cavalry, and since the restoration of peace in Cuba this demand will have to be made up by importations from the United States. But to Mexico as a permanent and enlarging market for American horses dealers in this country look chiefly, and by the agricultural census of last year it was shown that there are now more horses in Texas than in any other American State, the total number being 1,200,000. Illinois and Iowa follow Texas in the order named.

St. Johnsbury (Vt.) Horse Notes.

We have quite a number of good young horses here which are expected to show up well the coming season. A. D. Osgood has in his string at present the following good ones: Rooker C., bay gelding (2.22), by Stanford, owned by Horace and George W. Peck. This horse was purchased by the above gentlemen in August, 1898, and driven by trainer Osgood in 11 races, winning nine firsts, one second and one third money, and got his mark in a five-hat race at Lyndonville, Vt., after a hard sickness. He will be campaigned this season and will no doubt give a good account of himself. The Messrs. Peck also own Crodie C., own sister to Rooker C., and the dam of the above two. She has recently dropped a fine colt by Boston Globe.

F. A. Allison recently purchased the fine chestnut mare Lady Fawcett, by Pine-wood dam, a mare by Artemus, of starter A. H. Merrill of Danvers, Mass. She is a very racy-looking beast with a clean tail, is a pacer and goes strong. She has never been raced but has been trials in 2.20 and better. Trainer Osgood will race her this season.

W. N. Randall has in trainer Osgood's stable his 11-month-old colt by Turco (2.15), out of the dam of Allen Wilkes (2.20), Cobden (2.22). She was formerly the property of D. D. Bean of Barton, Vt., and is now owned by C. N. Corbitt. She is expected daily to drop a colt by Corbett (2.21).

H. E. Moore has in his stables, in care of the well-known trainer Harry Harding, Corbett (2.21), chestnut horse, by Cobden (2.22). This horse has wintered in grand shape, he never looked better or stronger, and will be raced this season. He has shown quarters in 31 seconds and miles in 3.12. With good success we shall look for him to come into winter quarters with a mark of 2.10 or better. He has sired some fine young stock, and we predict great prospects ahead.

Rex, chestnut gelding, by Norval (2.14), by Electioneer, bred by J. H. Lash of Indiana, and owned by secretary F. S. Harrison, is a grand individual, standing 16 hands and weighing 1100 pounds, possesses fine style, plenty of action and a remarkable amount of speed. He has every right to step fast, and we hope to see him trained this season, as he would no doubt give a good account of himself.

Bessie, bay gelding, by Harry Lambert, is a grand-moving colt, with good action, and one of the speediest horses on the snow path ever driven on our streets. They are putting him in shape for the coming season, and people who have ridden behind this chap say he will soon be the board.

Indiana Jim, bay gelding, by Norval, bred by J. H. Lash of Indiana, and owned by Barber Cobb, is a strongly built, nicely moving four-year-old colt, with plenty of courage and a good burst of speed.

J. C. Gray, the veteran butcher and horseman, has a fine three-year-old bay mare called Indiana Belle, that also came from J. H. Lash of Indiana, which he expects good things from, as she is "bred in the purple," to quote Jole, and has a great burst of speed. We shall be glad to see Mr. Gray ride in front, as he is one of our most influential citizens, and we all wish him luck.

H. A. Stanley is the happy owner of the chestnut mare Susan (2.26), by Elgin Boy. This mare was brought East last season and trained and driven by F. E. Batchelder, who marked her. Mr. Stanley is getting her in shape for the races, and we shall look to see her ride in the front tier.

Dr. Hitchcock has recently purchased a large, rangy, chestnut mare by Sherman Franklin, by Ban Franklin (2.23), and has not been raced much but has shown miles in 2.30 and better. She will be raced by the competent trainer F. E. Batchelder.

F. U. Carr, the Railroad street liveryman, has his bay mare Minnie J., by Jesuit, in fine form. She has had plenty of road work the past winter and looks very well. Frank recently owned A. S. L. (2.16), but says Minnie J. has pulled him faster than the initial pacer ever did. We shall look for Mr. Carr to have a successful season, as he has a nice piece of goods to go to the races with.

Be Kind to Your Horse.

A gently spoken word or a pat of the hand on your horse's neck will awaken in him a more responsive effort to your will than a harsh, rasping yell or a cutting blow of the whip. The Catholic Calendar relates this characteristic anecdote:

"The wagon was heavily laden with great bags of meal, too heavy for a single horse to draw, one would have thought."

"It turned into a side street and half way down the block again turned into an alley at the rear of a livery stable. It required considerable tugging on the part of the horse to pull the load up the incline of the alley driveway, but he did it, and the driver looked pleased when the back wheels had made the rise and settled down to level ground. At the barn door it was necessary to turn the wagon around completely and back in. Surely one horse could not do that. The turn was made easily enough but there remained."

"Back him up, Jim!" said the man, pulling lightly at the reins.

"The horse braced his fore feet and shoved. The wagon did not move."

"The man got down from the seat and went around to the back of the truck and the horse put every muscle to the strain."

"Back!" The wagon moved this time at least a foot. Two more, and the back wheels would be over the threshold of the barn door.

"Back! The command moved the horse to exert his greatest effort. There was a crunch of splintering wood and the wagon rolled back."

"Not a blow had been struck the animal. Only gentle words had been spoken, and the horse had done the rest."

"And when it was all over the man did not go on unloading the wagon without a further thought of the great, obedient animal standing still between the shafts. He went to him and took his nose in his hands and patted him between the eyes and said: 'Good old Jim! You did it, didn't you? I know you would.'"

"And the horse rubbed his nose against the man's cheek."

"It is pleasant now and then to see such things."

CLEANING THE CELLAR.

The first horse cleaning in spring should be done in the cellar, removing whatever is left of the vegetables and fruits put up for winter use, and after clearing away mould from the walls giving them a coat of fresh whitewash, into which a weak solution of carbolic acid has been used in making it. This will destroy latent germs, which more often originate in the cellar than anywhere else. After the cellar is cleaned and whitewashed place a few lumps of unslaked lime in any places that seem to be somewhat moist. Keep the cellar windows closed on warm, sunny days and open them at night especially if spring rain.

is the warm air from outside in the cellar coming in contact with the cold stone walls and metal which it contains that deposits moisture and soon forms a mould on all such surfaces. Most people think it is cool air which is responsible for damp walls. On the contrary, it is the warm and apparently dry air from the outside which does it when this is brought in contact with any cold surface.

In northeastern Labrador Mr. A. P. Low has found a fresh-water lake, eight hundred feet above sea level and one hundred miles from salt water, which is inhabited by seals. He thinks the ancestors of these seals were imprisoned in a bay when the general surface of Labrador rose after the glacial epoch. Before this out of the sea, the water gradually became fresh.

A Thing of the Past.

"I suffered greatly from dyspepsia. Everything I ate distressed me, my appetite was simple the food. I have taken Hood's Pills, and dyspepsia is a thing of the past. I am cured." Mrs. MARY T. GREGG, Weymouth, Mass.

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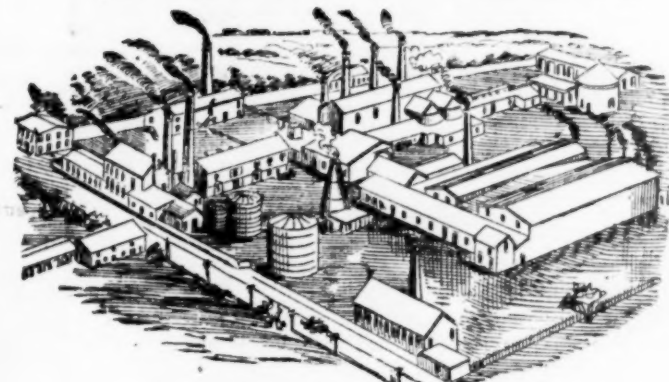
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